



VALENTINI
Wiring manual

SYNTAX[®]



Syntax SGH

Signal Insert

Inline and Panel Female
SGH 8.1 | SGH 16.1

Syntax Wireasy Technology



Preliminary operations

SGH Female Signal Insert

Preparation for all versions (both Inline and Panel-mount)

1

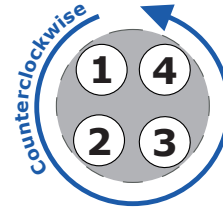


Best practice

Cable check

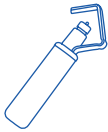
Check the sequence of the Ethernet cables: make sure it progresses **COUNTERCLOCKWISE** from 1 to 4. If not, use the opposite end of the cable. This operation makes wiring easier and more orderly.

Cable numbering sequence



Front view

2

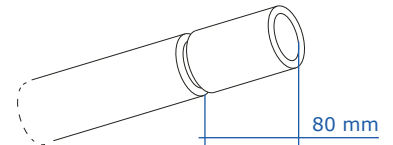


Sheath stripping

Outer sheath stripping

From the end of the cable, cut and remove **80 mm** of the **OUTER SHEATH**.

Outer cable sheath



Inline version

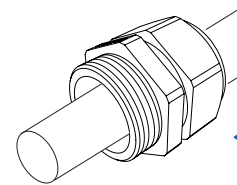
1



Assemble

Cable gland insertion

Put the **CABLE GLAND** on the cable. Make sure the threaded part will be nearer the extremity of the cable where the gland is inserted.



Cable Gland

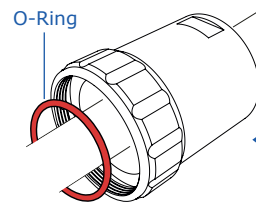
2



Assemble

Backshell and O-Ring insertion

Insert the **BACKSHELL** down the cable, in such a way the **REAR** part of the backshell is inserted first. The **REAR** of the backshell is the part where the machined areas for tightening with a wrench are. Then insert the **O-RING** down the cable.



Backshell

Panel version

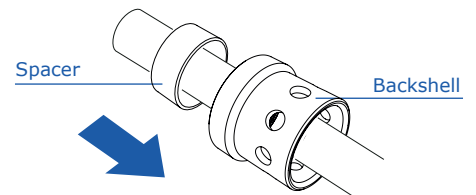
1



Assemble

Backshell and Spacer insertion

Insert the **BACKSHELL** down the cable, in such a way the **REAR** part of the backshell with the holes for cable fastening is inserted first. Then insert the **SPACER**.



Backshell

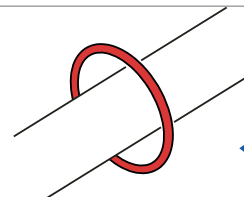
2



Assemble

O-Ring insertion

Insert the **O-RING** down the cable.



O-Ring

Preparation and wiring – Central insert signal cables

SGH Female Signal Insert

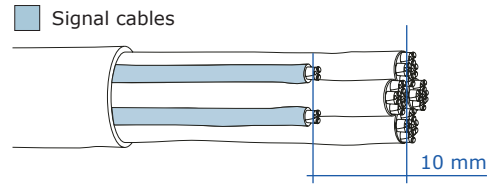
1



Cut off

Cable preparation

Cut the signal cables **10 mm** shorter.



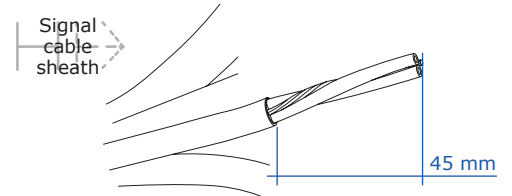
2



Sheath stripping

Signal cables sheath stripping

Cut and remove **45 mm** of the jackets from all the signal cables.



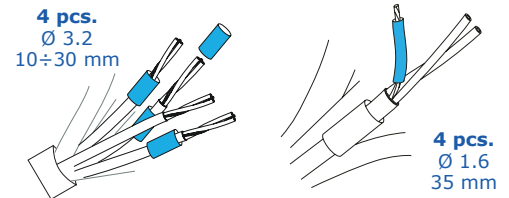
3



Heat shrink tubes Assemble

Heat shrink tubes

Cut 4 heat shrink tubes **Ø 3.2 mm**, length **20 mm** each and insert one of them on each signal cable. Then, cut 4 heat shrink tubes **Ø 1.6 mm**, length **35 mm** each and insert one of them on each drain wire of the signal cables.



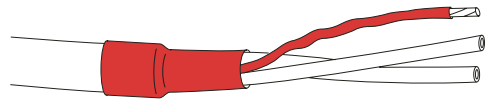
4



Heat

Heat shrinking

Place the bigger heat shrink tube in such a way as to overlap both the overall jacket and the conductors inside the cable. Make sure the smaller heat shrink is completely inserted on the drain wire. Repeat these operations for all the other signal cables. Apply heat and shrink the tubes.



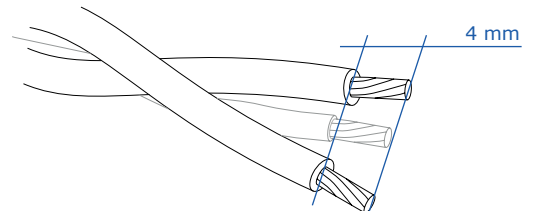
5



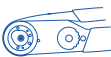
Wire stripping

Signal cables stripping

Strip **4 mm** of the signal cable conductors.



6

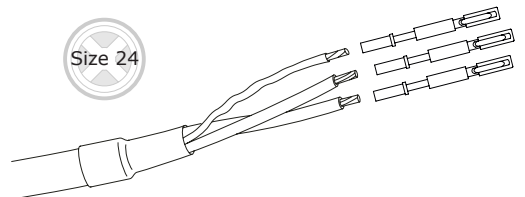


Crimp

Signal contacts crimping

Set the crimping tool for **size 24** contacts. Crimp the signal and drain wire contacts.

**This setting refers to DMC AF8 tools, part no. SVKTCRIMP*



Preparation and wiring - data cables

SGH Female Signal Insert

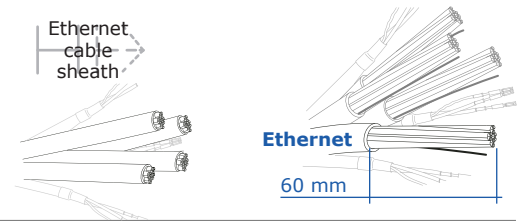
1



Sheath stripping

Ethernet cable jacket removal

Cut and remove **60 mm** of the insulating jacket from the **ETHERNET** cables. Repeat this operation for each ethernet cable.



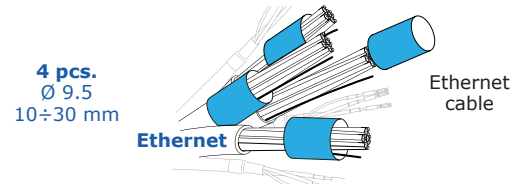
2



Heat shrink tubes Assemble

Heat shrink tubes on ETHERNET cables

Cut 4 heat shrink tubes \varnothing **9.5 mm**, length **20 mm** each and insert them on the **ETHERNET** cables.



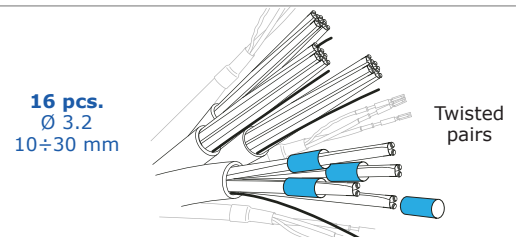
3



Heat shrink tubes Assemble

Heat shrink tubes on twisted pairs

Cut 16 heat shrink tubes \varnothing **3.2 mm**, length **20 mm** and insert them on each of the shielded twisted pairs on each **ETHERNET** cable.



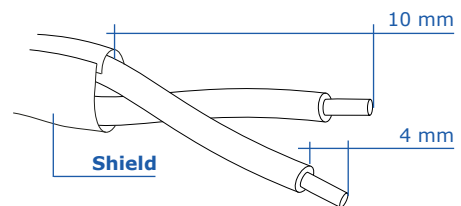
4



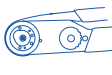
Wire stripping

Twisted pairs stripping

Remove **10 mm** of the shield. Strip **4 mm** of the **TWISTED PAIRS** of the ethernet cables.



5

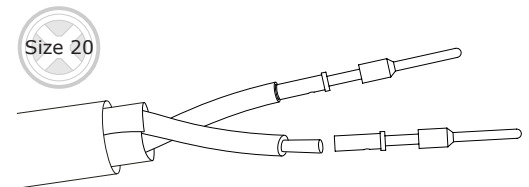


Crimp

Data contacts crimping

Set the **CRIMPING TOOL** on **SIZE 20*** and crimp the contacts

**This setting refers to DMC AF8 tools, part no. SVKTCRIMP*



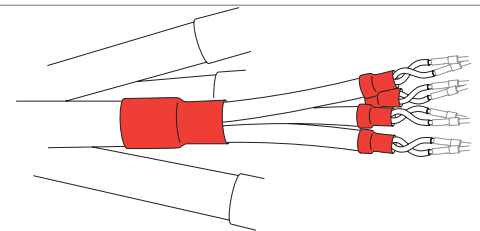
6



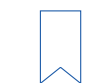
Heat

Heat shrinking

Place the bigger heat shrink tubes in such a way as to overlap both the jacket and the shield of the twisted pairs. Place the smaller heat shrink tubes in such a way that the end of the tube nearer the contacts completely overlaps the shield. Repeat these operations for all the other signal cables. Apply heat and shrink the tubes.



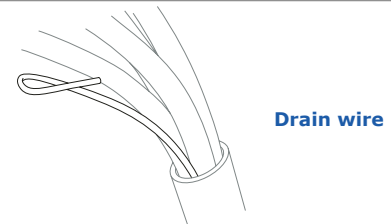
7



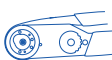
Best practice

Drain wire

Each **ETHERNET** cable has a **DRAIN WIRE** for the shields. Bend the drain wire on itself and make it double. This operation will double up the section of the drain wire for easier crimping.



8

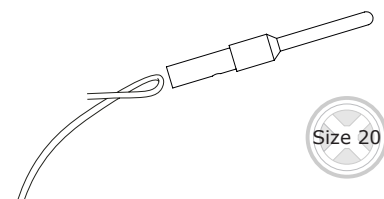


Crimp

Shield drain contacts crimping

Set the **CRIMPING TOOL** on **SIZE 20*** and crimp the shield drain contacts.

**This setting refers to DMC AF8 tools, part no. SVKTCRIMP*



Insertion of contacts, central insert and outer modules

SGH Female Signal Insert

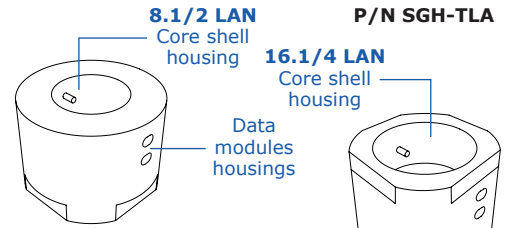
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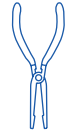
Best practice

Tool for modules insertion

A specific tool allows easy contact insertion inside the modules. On the tool, there are two housings on the front side where the **DATA CONTACT MODULES** are placed, and a housing on both the top and the bottom for the central insert and **CORE SHELL** (one of those housings is for the 8.1 model, the other is for the 16.1 model). For correct usage of the tool, clamp it on a **VISE**.



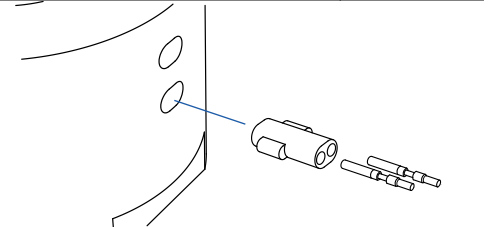
1



Insertion

Insertion of contacts inside the data contact modules

Insert the data modules in the lower slot on the front side of the SGH-TLA tool. Use pliers to insert the contacts all the way down until they are locked in place. The color of the modules are compliant with the color patterns according to 568A/B. At this stage, the polarity of modules is not important, but it is however preferable to insert the contact of the solid-colored wire on the right of the module.



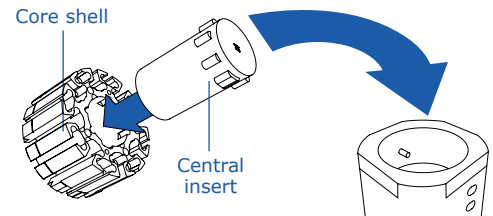
2



Assemble

Central Insert and Core shell assembling

Fit the rubber central insert in the housing at the center of the core shell, paying attention to the keyways. Thanks to the keyways, the two elements are automatically interlocked in the right position. Place the two components with their front side facing downwards when fitting them in the housing on the top of the insertion **TOOL**.



3

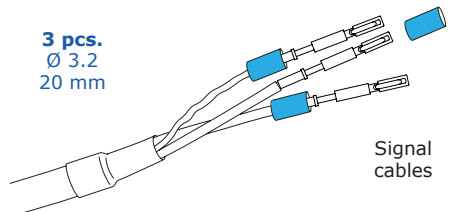


Heat shrink tubes
Assemble

Heat shrink tubes on signal cables

Cut 3 heat shrink tubes \varnothing 3.2 mm, length 20 mm and insert them on each of the signal cables with their crimped contacts.

3 pcs.
 \varnothing 3.2
20 mm



Signal cables

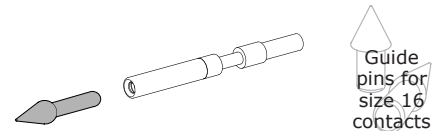
4



Best practice

Guide pins

Fit guide pins on the contacts before installing them in the central insert. When inserting them, usage of ethanol or IPA is recommended. This procedure will make insertion easier, preserving the integrity of the pin cavities.



Guide pins for size 16 contacts

P/N SVKT16GP

5

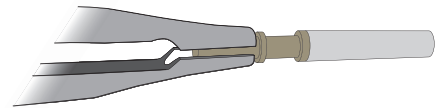


Insertion

Insertion of contacts in the central insert

With a suitable insertion tool, hold the crimping terminal of the contact.

Insertion pliers P/N SVKTINS16

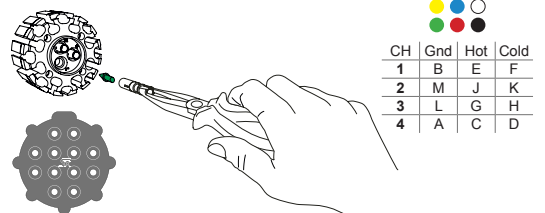


6

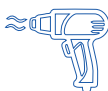


Insertion

Referring to the diagram on the right, insert the contact in the correct cavity, pressing it inside until it is felt as locked in its position.



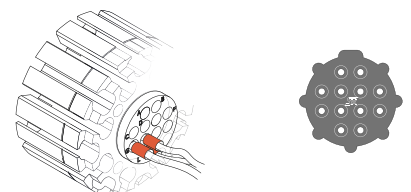
7



Heat

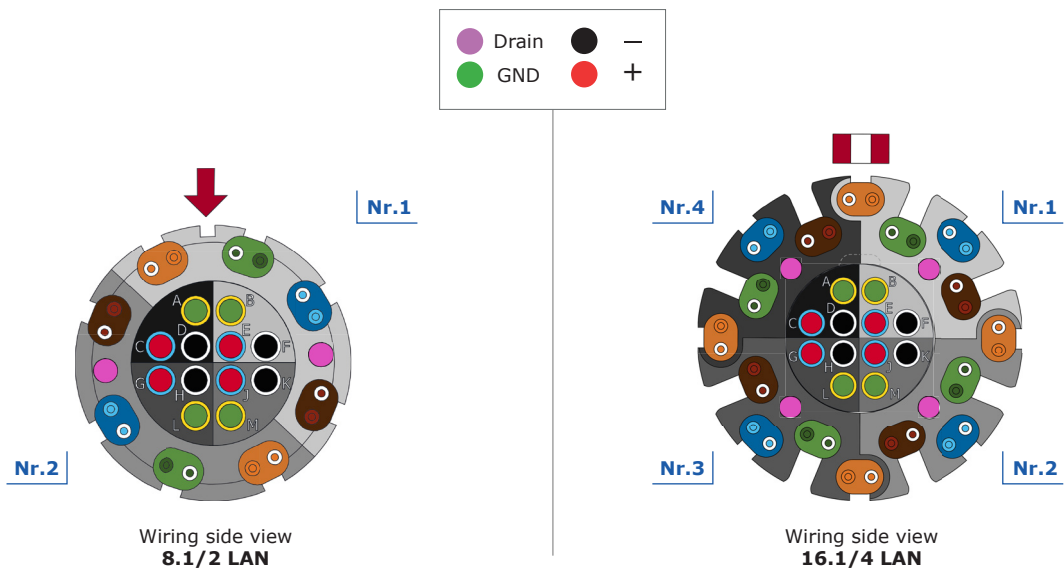
Heat shrinking

Slide down all the heat shrink tubes previously fitted on the cable and place them against the central insert. Apply heat and shrink the tubes.



Data modules placement sequence

SGH Female Signal Insert



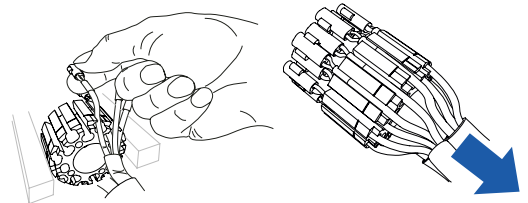
1



Assemble

Modules placement

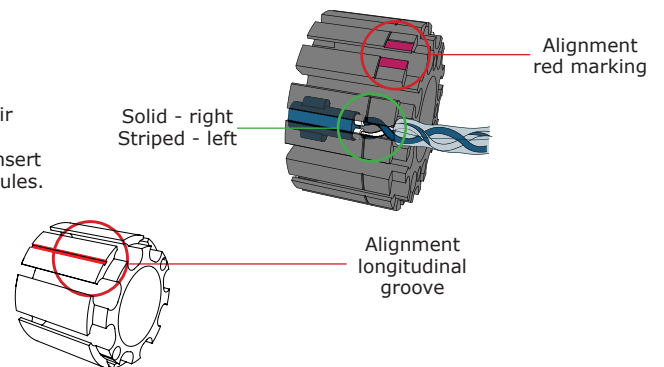
Insert the modules in the correct housings according to the wiring diagram. Pass the cable through the open slots of the core shell. Pay attention to the color of the modules and to the color and position of the striped and solid wires of the twisted pairs.



Best practice

Alignment markings

The purpose of the **red marking** for the 16.1 series or the **longitudinal groove** for the 8.1 series is to provide a reference for a correct sequence of the colors of the signal contact pair modules. For a correct polarity of the **twisted pairs**, looking at the wiring side of the shell, insert the solid-colored wires on the right of the modules.



Inline version: final operations

SGH Female Signal Insert

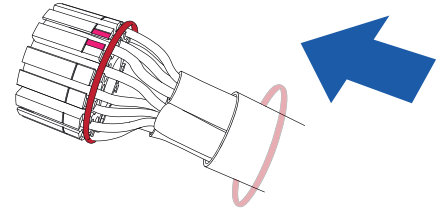
1



Assemble

O-ring assembling

Slide the **O-RING** down the cable onto the core shell and place it in its specific position.



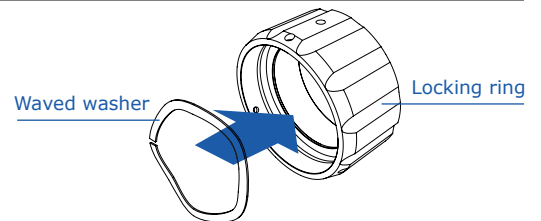
2



Assemble

Waved washer and locking ring assembling

Insert the **WAVED WASHER** into the locking ring from the side where the roller pins are, and place it past the roller pins.



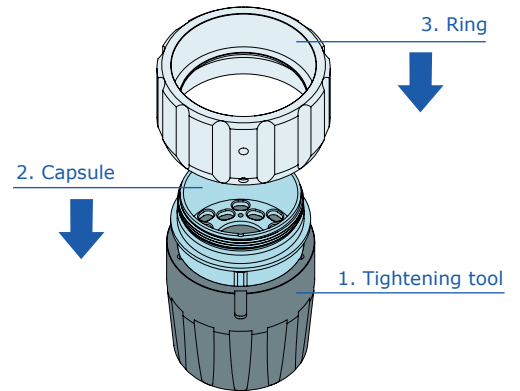
3



Best practice

Tightening tool

Fasten the tightening tool firmly on a flat surface. Fit the connector's metal capsule on the tool, making sure the threaded part of the capsule faces upwards.



4



Assemble

Locking ring assembling

Place the locking ring (complete with its waved washer) so as the roller pins are fitted in their recessed housings inside the tightening tool.

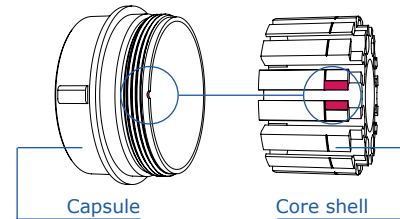
5



Assemble

Core shell and capsule assembling

Insert the wired **CORE SHELL** inside the **CAPSULE** which is still fitted on the tightening tool, making sure that the **ALIGNMENT MARKING** on the core shell is aligned with the red mark on the capsule.



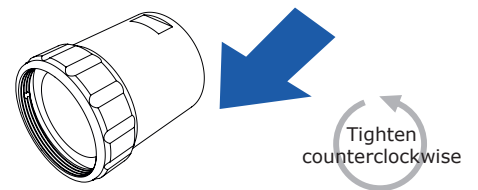
6



Assemble

Backshell tightening

Slide the **BACKSHELL** down the cable onto the capsule, then tighten the backshell screwing it counterclockwise. Use a suitable wrench to tighten.



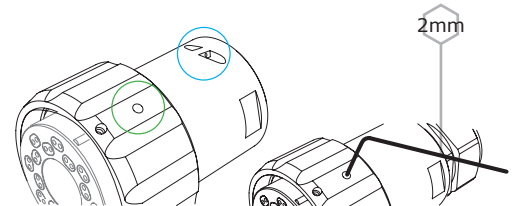
7



Best practice

Anti-rotation grub screw tightening

Hold the backshell so that the **machined housing for the Dust cap lacing** is upwards. Spin the locking ring until the grub screw is visible and aligned below **the hole on the locking ring**. Use a **2mm** allen screw to tighten the grub screw.



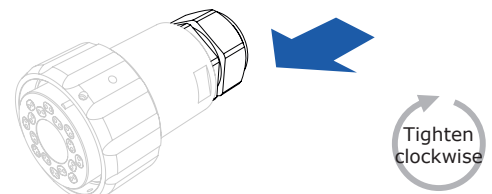
8



Assemble

Cable gland assembling

Slide the cable gland down the cable onto the backshell. Hold the backshell firmly and screw the cable gland clockwise on the backshell.



Panel version: final operation

SGH Female Power Insert

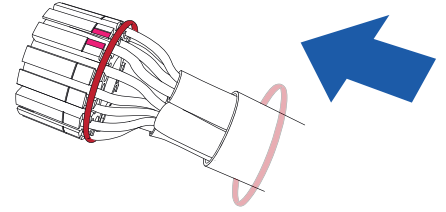
1



Assemble

O-ring assembling

Slide the **O-RING** down the cable onto the core shell and place it in its specific position.



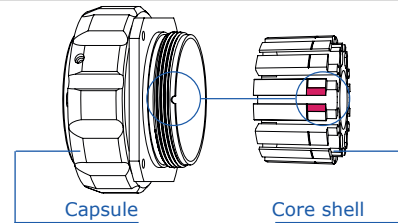
2



Assemble

Waved washer and locking ring assembling

Insert the wired **CORE SHELL** inside the **CAPSULE** which is still fitted on the tightening tool, making sure that the **ALIGNMENT MARKING** on the core shell is aligned with the red mark on the capsule.



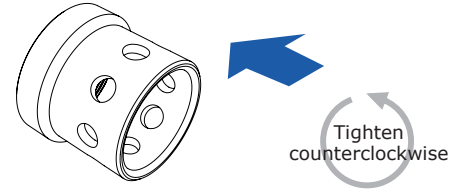
3



Assemble

Backshell tightening

Slide the **BACKSHELL** down the cable onto the flanged capsule. In so doing, the spacer will automatically be fitted inside the backshell. Then, tighten the backshell screwing it counterclockwise. Use a suitable wrench to tighten.



4



Assemble

Panel mounting

Insert four M3 button-head bolts into the corresponding holes on the connector's flange. To access the holes and tighten the bolts, spin the locking ring until the groove for the screwdriver is aligned with the holes

